Long-term performance decrement in young (elite) athletes: Relation with stress recovery balance and clinical parameters

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Ethical review	Approved WMO
Status	Recruiting
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON29978

Source
ToetsingOnline

Brief title
Long-term performance decrement in young (elite) athletes:

Condition

- Other condition

Synonym
non-functional overreaching, staleness

Health condition

niet-functionele overbelasting

Research involving

Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Groningen
Source(s) of monetary or material Support: ZonMw

Intervention

Keyword: clinical parameters, monitor, performance decrement

Outcome measures

Primary outcome

Performance:Interval Shuttle Run Test (ISRT) for ball team players, Zoladz Test for runners.

Monitor: daily log of stress and recovery, monthly Recovery Stress Questionnaire for athletes (RESTQ-sport)

Secondary outcome

Changes in hormone profiles as a result of two graded max. exercise tests: ACTH, Prolactin, GH, and Cortisol.

Finger Precuing Task (FPT) psychomotor speed.

EEG:Power and coherence spectra (F3-P4, F4-P3, eyes-open and eyes-closed conditions 2 minutes each) for left/right balance and overall slowing (power), and for left-frontal/ right parietal coherence, measured before, during and after a stress test. Saliva cortisol is measured before the stress test.

Study description

Background summary

Long-term performance decrement in young (elite) athletes: Relation with stress

recovery balance and clinical parameters

The high workload of top athletes is frequently linked to overtraining (minimum life time prevalence 20%). Especially between 15 an 23 years of age the top athlete is not only confronted with an increased training load, but also with an increased social an psychological load. To protect the athlete and to improve efficiency of the training and development phase of an athlete, prevention of overload and overtraining is demanded. However, a suitable preventive instrument does not exist.
From a multi causal perpective it is studied wrther parameters of the stress-recovery balance may be suitable for a future online monitor that signal the development of overtraining in young top athletes.
Currently, there is no other diagnostic instrument for the overtraining syndrome than a per exlusion protocol. Recent studies have shown that endocrinological responses to acute and high physical overload and brain activity in psychiatric diseases may offer new oppertunities to improve clinical diagnostic tools of the overtraining syndrome.

Study objective

The main objective of this research proposal is to 1). the devolpment of a monitor with stress and recovery parameters to predict long-term performance decrement in young elite athletes
2). evaluating the association between endocrinological and neuro-psychological parameters and long-term performance decrement in young elite athletes.

Study design

1. A prospective study using an online monitor (logbook method).
2. Een case-control design to test differences in endocrinological adaptation after heavy physical exercise tests and brain activity after a stress test.
Cases are included if performance decrements are measured in the monitor.
Controls are included if performance decrements are lacking, and after matching them with the cases on type of sport and age.

Intervention

Two maximal exercise tests

Study burden and risks

There are no risks associated to the participation of the online monitor. Also, many athletes are used to fill in log books and questionnaires. Stress and recovery are registered only once a month posing only a minor workload on the athlete. Two other questionnaires are only used twice or three time during the entire season. Performance testing in the monitor, as a replacement of normal a

training session, will not lead to any physical burden higher than any training does.
There are no known risks for athletes to participate in tasks of psychomotor slowness and in EEG measurements. The risk of participating in the double maximal exercise test is the same as the risk related to sport participation, since a maximal exercise is part of their regular training program or mach/game. An insurance covers the risks involved in the maximum exercise tests with collection of blood samples (four times 20 ml), which involves less than half the number of participants.
The specific sensitivity to overload and overtraining, their age dependant causes and age dependant physiological changes defines this study as dependant to the population under study.
The frequent occurrence of overload and overtraining and the impact that performance decrements and failure can have on young athletes, justifies the minor burdens of this study if increased knowledge is obtained.

Contacts

Public
Universitair Medisch Centrum Groningen

A. Deusinglaan 1
9713 AV Groningen
Nederland
Scientific
Universitair Medisch Centrum Groningen

A. Deusinglaan 1
9713 AV Groningen
Nederland

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Adolescents (12-15 years)
Adolescents (16-17 years)
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Young elite athletes between 15 and 23 years, males.

Exclusion criteria

Athletes suffering from any medical problem that is supposed to be a risk factor for maximal exercise testing or limits their exercise capacity (eg viral infections, anemia, allergy, medication, diabetes, hypothyreoidea, cardiac diseases) will not be included in the study sample.

Study design

Design

Study type:	Interventional
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	08-02-2007
Enrollment:	156
Type:	Actual

Ethics review

Approved WMO Date:	20-10-2006
Application type:	First submission
Review commission:	CCMO: Centrale Commissie Mensgebonden Onderzoek (Den Haag)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL12864.000.06